

Steve, here are the summaries you requested. We don't have one for UOP/Honeywell or SCP. We also do not appear to have one for Henkel.

### Arsynco

Arsynco has owned the property since 1969 and operated from 1969 to 1993/1994, when the entire facility was demolished. Arsynco operates as a subsidiary of Aceto Corp.

The property currently consists of two tracts of land. Former owners/operators of Tract 1 include Victor and Eugene King (?-1920); Moses and Josephine Trubeck (1920-1925); and PA Alcohol & Chemical Corp (fka, Franco American Chemical Works) (1925-1942). Former owners/operators of Tract 2 include Sarah Berry (? - 1927), Carlstadt Holding Corp. (1927-1928), and PA Alcohol & Chemical Corp (fka, Franco American Chemical Works) (1928-1942). Former owners/operators of both Tracts 1 and 2 include commercial Solvents Corp. (1942-1945); an unknown corporation (1945-1955); Fries Bros, Inc. (1955-1961); and Inmont Corp. (fka, Interchemical Corp.) (1961-1969).

The property has been used continuously for chemical manufacturing operations since the early 1900s. The facility ceased operations in September, 1993.

Arsynco manufactured specialty organic chemical, pharmaceutical, and cosmetic ingredients and intermediates in batch-type processes. Chemical activities included commercial-scale chlorination, hydrogenation, condensation, oxidation, reduction, esterification, and amination via distillation, crystallization, tray and vacuum drying, and solvent recovery. Chemicals produced included 3,5,5-trimethyl cyclohexanol, dimethyl benzylamine, benzyl cyanide, and ZK-47 (imine terminated monomer in xylene). During the 1960s, the facility also produced large quantities of methyl aziridine phosphine oxide (MAPO), which was used by the military as rocket fuel. All production and manufacturing activities have been located on Tract 1.

Chemicals used in production at the facility which are also listed in the 104e Questionnaire include toluene, xylene, methylene chloride, rainy nickel catalyst, manganese carbonate, naphthalene, and sodium cyanide. In the 1960s and early 1970s, PCBs were used in a heat transfer system in Buildings 1, 3, and 6. The PCB oils were heated in a small shed adjacent to Building 3 and pumped to Building 6 for use in the heat transfer system. PCBs were used in Building 1 in an electrically heated still unit used to distill acid chlorides. These PCBs were heated in locally in Building 1. In 1972-1973, all PCB fluids were changed over to non-PCB fluids (1997 RI Report, p. 8). In addition, Fries Bros. added a "chemically stable liquid with a high boiling point (heat resistance) and low solubility" to the processes to keep the still bottoms from coking to the vessel interiors (p. 7) (TechLaw Note: This liquid could have been a PCB oil, although this was not stated. Still bottom waste used as fill on-site contains high levels of PCBs.)

The facility included two major diked tank farms and numerous other storage vessels located in and outside of buildings. Fiber drums and bags were always stored indoors. Two underground storage tanks (USTs) were located east of Building 1. One 2,000-gallon tank was used to store dichlorobenzene from about 1950 to the 1960s. A 17,000-gallon tank, also installed in 1950, was used for leaded gasoline until about 1960. Both of these tanks were removed in 1994.

Hazardous wastes generated included spent solvents, still bottoms, and off-spec raw material and product. Solvents (toluene, xylene, methylene chloride, methyl and isopropyl alcohol) were recovered and "rehabilitated" via distillation and reused. Hazardous waste manifests for the facility also include 1,4-dichlorobutene, chlorotoluene, 1,1,1-TCA, chloroform, pyridine, mercury, chromium, chromic acid, and magnesium. Additional wastes listed in the hazardous waste inventory (1993 SES, Att. I) include zinc, carbon tetrachloride, and chlorobenzene.



All process wastewater was reportedly sent to the effluent treatment basin (ETB) south of Building 5 for neutralization, skimming, and settling. Stormwater runoff was directed to the ETB via surface drains and trenches, and rainwater from the tank farm containment area was pumped to the ETB (1997 RI Report, pp. 12, 65). The water from the ETB was monitored continuously for pH, aerated, and discharged to the BCUA via the 13th Street sewer line. The skimmed insolubles were disposed of off-site. Sludge was removed annually and disposed of off-site (104e Response #13). The wastewater was discharged under a NJPDES permit until 1993, when the program was transferred to the Bergen County Utilities Authority (BCUA) sewer system. Industrial and sanitary wastewater were reportedly directed to the municipal sanitary sewer system since 1909, when the local lines were installed on 13th Street, although there were septic tanks located north of Buildings 5 and 11 (1997 RI Report, Fig. 4) that had been connected to the restroom facilities. Wastewater discharge information prior to 1909 was not reported. The ETB was shut down during facility closure activities in 1994, and the line leading from the ETB to the BCUA was sealed.

Numerous floor drains and trenches discharged from the production area buildings (1997 RI Report, Figs. 2, 4). Based on a study of the facility drainage system, all floor trenches and drains were currently connected to the ETB. The current underground drainage system reportedly consisted of clay and steel pipes with chemical-resistant neoprene gaskets at the joints. The system was found to be in good condition overall, but old sections of the drainage system had been periodically replaced, with remnants of the old pipes left in-place. All drain lines, trenches, and catch basins were removed in 1994.

The study also found that interior trenches and drains in Building 6, and exterior trenches (for runoff) around Building 6 were previously directed through a concrete channel to a former pond on the east side of the Tract 1 (1997 RI Report, p. 41, and Fig. 4). According to employee accounts, the drainage channel reportedly was used to direct non-contact cooling water to the former pond (p. 41). (TechLaw Note: It is unlikely that non-contact cooling water would be discharged via open floor trenches. The employees may have confused this former pond with the production pond described below, as that pond held non-contact cooling water.) The pond discharged to the wetlands on Tract 2. The pond was filled in the early 1970s, and the channel was sealed.

Floor drains and trenches in Building 8 also previously discharged to the former pond at the east side of Tract 1. Interior drains and trenches, and an exterior loading dock drain, were directed to an exterior catch basin, which was previously connected via a drainage channel to the former pond. The channel was sealed and directed to the ETB when the pond was filled in the early 1970s.

A drainage channel reportedly ran from a large pond located on the Henkel (a.k.a. Occidental Chemical, Diamond Shamrock) property to the north of the facility, onto the Arsynco property, and subsequently into drainage ditches on the property and into the former pond. This ditch was reportedly filled in 1996 (1997 RI Report, p. 54, 56).

A concrete- and clay-lined production pond constructed in 1940 with a capacity of 500,000 gallons and located in the southwest area of the property was used to store non-contact cooling water (1997 RI Report, p.22). Water in the pond was supplied by an on-site production well. The water was pumped to a water tower and distributed throughout the facility for various cooling processes. Water returned to the pond via two underground pipes. Overflow traveled over a weir at the south side of the pond, into a drainage ditch at the south side of the property, across a marshy area, and eventually discharged into Berry's Creek. Between 1957 and 1982, the marshy area was filled in, and the channel was piped underground. This pond was closed out and filled in 1994/1995 (p.68). Also, several pipes leading from the adjacent ~~Cosani~~ <sup>Cosani</sup> Chemical facility discharged directly into this channel.

An acidic wastewater treatment basin was located to the north of Building 1. This basin was installed in the early 1960s and was used to neutralize acidic process wastewater until 1970. The water was neutralized via contact with the limestone bottom of the basin and dilution with rain water. The treated water was then directed to the ETB.

A 10-square-foot drum cleaning station was located to the northeast of Building 1. The area consisted of a brick pad. Hazardous and non-hazardous substances were brought to this area for consolidation prior to off-site disposal. A drain connected the pad to the ETB (1997 RI Report, Fig. 4). Further description of activities in this area was not provided.

Several manmade drainage ditches are located on Tract 2, which discharge to Never Touch Creek, a tributary of Berry's Creek. These ditches accept "drainage and discharges" from the surrounding industrial facilities and are tidally influenced by the Creek (p.3). The natural drainage of the area is to the southeast, towards Berry's Creek.

A rail spur is located adjacent to the south side of Building 3. Based on aerial photos, coal was unloaded in this area in the 1940s.

The eastern portion of the property (Block 91, Lot 1, Tract 2) is considered wetlands and has never been used by Arsynco for manufacturing processes (104e Response #2).

Groundwater in the vicinity of the facility is mildly tidally influenced, in both the perched and deeper aquifers. Groundwater migration is minimal, but net flow is east, towards Berry's Creek. (1997 RI Report, p. 14)

NJPDES: NJ0030970 (non-contact cooling water to Berry's Creek). Terminated 11/30/1994.

NJPDES: NJ0101958 (infiltration/percolation to ground water).

NJDEP: 868 (physical connection).

Borough of Carlstadt: 279S (smoke permit).

Bergen County Utility Authority: 930392 (SU1 – sewer).

Direct (e.g., pipe, outfall, spill):

In October 1992, xylene was reportedly discharged to the Berry's Creek study area via a tidal ditch located adjacent to Building 19 (104e Response #16).

During demolition activities in 1994, concrete floor samples were collected from various buildings. Elevated levels of PCBs and xylene were detected in the samples from Buildings 6 and 8. PCB-containing oils were observed seeping into the cracked Building 6 floor trenches from beneath the slab. Building 6 was the former location of the stills that used the PCB-heat transfer system. Elevated levels of ethylbenzene, toluene, and xylene were also detected in the soils beneath the floor slab of Building 8. The drains and trenches in these buildings historically discharged via the former pond at the east side of Tract 1 to the wetlands area in Tract 2. These contaminants are likely to have discharged to the wetland area. (1997 RI Report, pp. 45, 50)

Elevated levels of PCBs were detected in sediments in the drainage channel running from Building 8 to the former Pond at the east side of Tract 1. Slightly elevated levels of PCBs and thallium were detected in the drainage channel leading from Building 6 (1997 RI Report, pp. 51-52).

Sediments at the base, inlets, and outlet of the former pond to the east of Tract 1 were found to contain elevated levels of chlorinated and non-chlorinated VOCs (benzene, chlorobenzene, toluene, xylene, methylene chloride, TCE, DCE). While the clay liner in this pond may have prevented the contaminants from reaching groundwater, the water in the pond discharged directly to the Tract 2 wetland area to the east. Also, lateral contamination indicated periodic flooding of the pond waters (1997 RI Report, p. 62-63). This is likely to have been a pathway to the Berry's Creek area for chlorinated solvents, which are likely to have some persistence in sediments.

Elevated concentrations of metals (arsenic, beryllium, copper, lead, nickel, thallium, and zinc, and very slightly elevated levels of chlorobenzene were detected in Tract 2 (the wetland area). Elevated levels of VOCs extended a short distance from the former pond along the open drainage ditch (1997 RI Report, pp. 79-80).

Also, a drainage trench led from a large production pond on the property to the north (Henkel/Diamond Shamrock/Occidental Chemical) to this former pond at Arsynco. Contamination, including VOC, BN, PHC, PPM, and PCBs had reportedly been detected in the Henkel pond (1997 RI Report, pp. 54, 58).

In September 1985, about 3,600 gallons of 20% sodium hydroxide leaked at the tank farm area. About 500 gallons seeped through cracks in the dike and onto the ground. The NaOH was reportedly neutralized with sulfuric and acetic acid and washed into a drainage ditch connected to Berry's Creek (Letter from NJDEP to David Hird, re: Arsynco, Inc.; dated 3-28-2000). (TechLaw Note: NaOH is not likely to affect sediments, especially after neutralization. However, basic solutions have the potential to form soluble complex ions with metals, which

facilitates contaminant migration in water.)

Sanitary Sewer:

Storm Sewer:

Storm Drain:

Floor Drain:

Runoff:

Groundwater:

Direct (e.g., pipe, outfall, spill):

Sanitary Sewer:

Storm Sewer: The Effluent Treatment Basin discharged to the sanitary sewer, and therefore any contaminants in the process waste water (such as solvents or metals). Because the area was connected to a Combined Sewer Overflow system, these contaminants may have been discharged to surface water via the storm sewers during storm events.

Storm Drain:

Floor Drains and Trenches: In 1994, elevated levels of metals were detected in soil samples collected from the floor drains and trenches in Buildings 1 and 19, and slightly elevated levels of PCBs were detected in Building 19. These drains were reportedly connected to the ETB (1997 RI Report).

Runoff: Elevated levels of xylene, toluene, chlorinated solvents, and PCBs were detected in the surficial historic fill materials during the 1993 ISRA activities at the facility. During storm or flood events, contaminated top soil may have been carried to the wetland area or surface water by stormwater runoff. These chemicals are likely to be persistent in sediments.

Elevated levels of arsenic and benzo(a)pyrene were detected in surface soils in Area of Environmental Concern (AEC) I. This area drains through a drainage ditch at the south side of the facility to Tract 2. Elevated levels of PCBs, beryllium, chromium, lead, and zinc were detected in surficial soils near the border between Tracts 1 and 2. Lead extended onto the Tract 2 area as well (1997 RI Report, p. 70). Highly elevated levels of PCBs (near 500 ppm) were detected in surficial soils throughout the southern section of the site (p.74). These contaminants are likely associated with industrial wastes (e.g., still bottoms) used to fill this area in the 1950s and 1960s (p.72-73). Because stormwater drains to the east from this area, stormwater may carry contaminants to the wetlands area or surface water.

The facility received a violation from the NJDEP for leaking drums in 1992. The drums were located in a drum storage area near Building 11 (Area 2) and contained sulfonyl chloride and o-nitrochlorobenzene. The area was mostly paved, although the asphalt was cracked and deteriorated. Although soil samples from beneath the asphalt did not show elevated levels of contaminants, leaking fluids could have been carried to the wetlands or surface water by stormwater runoff. (1997 RI Report, p. 29)

Groundwater: Both the deep and shallow aquifer systems at the facility are contaminated with elevated levels of chlorinated and non-chlorinated solvents. However, the 1997 RI Report groundwater characterization study indicates that groundwater flow and plume migration in the area is minimal (pp. 94-95).

Soil:

early/mid-1960s – drums containing PCBs were buried by Inmont Corp. in the southeast area of Tract 1 (104e

Response #16).

1970-1971 – contaminated material was buried in the former pond area in the east side of Tract 1 (104e Response #16).

Direct: PCBs; benzene, chlorobenzene, toluene, xylene, methylene chloride, TCE, DCE, arsenic, beryllium, copper, lead, nickel, thallium, zinc, NaOH.

10/1992 - 20 gal xylene (TechLaw Note: 104e Response #16 indicates 20 gallons spilled, but the 1997 RI Report, p. 55, indicates 50 gallons spilled).

9/1985 - 500 gal NaOH.

Also see Occidental Chemical (former Diamond Shamrock/Henkel Corporation). Testimony provided by Occidental states that flow in the drainage channels was actually directed from the former Arsynco property to a pond on Occidental property. This is contradictory to reports provided by Arsynco, and this issue needs to be clarified.

Several pipes leading from Cosan Chemical (southern neighbor) discharged to the drainage channel at the south side of the Arsynco facility (1997 RI Report, p. 68). Additional information may be available in the Cosan file.

From the material presented in the file, it does not appear that any sampling of standing water in the drainage ditches has been conducted. If sampling of this nature has been conducted, the results/report should be presented.

### **Atlantic Aviation**

The Teterboro Airport was developed in the 1920s. Atlantic Aviation has had occupancy at the Teterboro Airport from 1946 to the present.

EAS, dba Atlantic Aviation Corporation, is the successor company as a result of the purchase of Atlantic Aviation Holding Company on December 21, 2000.

Atlantic Aviation leases a portion of the Teterboro Airport property from the Port Authority of New York and New Jersey. The leased parcels (totaling 18.6 acres) consist of three hangars, associated ramp and parking areas, and an arrivals and departures terminal building for general aviation customers. Hangar 2 was completed in January 2002, Hangar 3 in 1946, and Hangar 4 in 1981. An original Hangar 2 was built in 1946, and was used as a Beechcraft airplane dealership. Light aircraft maintenance, avionics, and aircraft fueling were part of the dealership. Historic fueling service was provided on the ramp in front of the old Hangar 2 using self serve pumps connected to underground storage tanks (USTs). Engines would be removed from time to time and sent off property for overhauls or replacement. Atlantic Aviation would re-install the engines but did not perform the overhauls. There were no floor drains in the old Hangar 2. Painting of aircraft or support equipment was not part of the business (#7, Request for Information response, dated December 17, 2002, Page 4). Atlantic Aviation demolished this hangar and built the new Hangar 2, which opened in 2002, at the same location.

Hangar 3 was built in 1946 by Mallard Air Service. Atlantic Aviation took over the lease in 1952, and moved the aircraft maintenance work from the old Hangar 2 to Hangar 3. The hangar is utilized for routine aircraft line maintenance, aircraft storage, and ground service equipment

(GSE) maintenance. Air craft and GSE maintenance is limited to oil changes, tire repairs, electrical inspections and hose replacements. The subtenants in Hangar 3 include custom interiors, avionics equipment sales and service, and US Customs (#2, Request for Information response, dated December 17, 2002, Page 2).

Aircraft washing is allowed inside the hangar using a biodegradable soap. Hangar 2 has an OWS (*TL Note: likely oil/water separator* ). There is no OWS at Hangar 3. The rinse water enters the drain and discharges to the sanitary sewer system. At Hangar 4, there are two OWS units located inside Hangar 4 that are connected to sanitary sewer.

Hangar 4, built by Atlantic Aviation in 1981, includes 32,500 square feet of hangar space and 3,419 square feet of shop space.

The outside area round the three hangars is used for aircraft parking, mobile fuel truck parking, auto parking, and aircraft taxiways. Aircraft fueling, de-icing, towing and tie-downs are conducted in these areas.

Atlantic Aviation also operates a fuel storage facility, owned by ChevronTexaco. The fuel facility is located on Malcolm Avenue, which is approximately 0.5 miles from Industrial Avenue on a side street between Industrial Avenue and Highway 17. ChevronTexaco leases the land from the Port Authority.

Historically, Atlantic Aviation also operated the Exxon fuel facility, located on Malcolm Avenue, from 1952 through 1972. The fuel system was owned by Exxon, and the land was leased from the Port Authority (#7, Request for Information response, Page 2).

Hazardous substances used at the facility are propylene alcohol, methanol, engine oil, hydraulic fluid, nitrogen, oxygen, sodium hydroxide (boiler room), potassium hydroxide (boiler room), propane, antifreeze, sodium nitrate (boiler room), propylene glycol (stored in a 3,200 gallon AST in Hangar 3), trichloroethane (parts washer for use in Hangars 3 , 4), amino ethanol (aircraft soap), acetylene, and lead-acid batteries (spent batteries are sent off-site).

Jet fuel (90,000 gallons) and Avgas (24,000 gallons) are also stored in above ground storage tanks (ASTs) at the ChevronTexaco facility.

Hazardous waste generated at the site includes waste oil, oil/water mix and solids from cleaning the OWS's, oil sorbent material, rags, and used antifreeze. Safety Kleen handles the disposal of waste fuel from the fuel facility, oil rags, sorbent pads, and waste oil from the hangars (#13, Request for Information response, Page 7).

Several tanks are no longer in use or have been removed at the facility. Tank E55 (*TL Note: contents not mentioned* ), an aboveground tank in a containment structure installed in 1990 in Hangar 3, is no longer in use. Tank A2 (aka A4), a fuel oil tank, was removed in 1998 (*TL Note: the location of this tank was not mentioned.* ) Another tank (E12), a 3,000-gallon heating oil tank at Hangar 12, was removed December 1989. Two additional tanks (Emergency Spill

Tanks E4 and E5) have been requested to be removed. (#, Request for Information response, Page 7).

The 104(e) response also notes that “to the best of Atlantic Aviation knowledge, [any] spills have been incidental (<less than 25-gallons), and are determined not to be a potential threat to the environment or US Waters...Fuel spills may occur at the fuel facility within the containment dike and truck spill containment ” (#16, Request for Information response, Page 8).

Atlantic Aviation is “not aware of any environmental permits that are required for its operation at Teterboro Airport” (#10, Request for Information response, Page 5).

However, the facility’s response mentions that the Port Authority maintains an Industrial Permit for storm water discharge, which requires monthly sampling at two outfalls. ChevronTexaco has a NJDPES permit (NJ0031194) for the fuel facility.

Sanitary Sewer: The 104(e) response mentions that aircraft maintenance activities occurred in Hangar 3, but that rinse water from this hangar is discharged to the sanitary sewer. Two OWSs are located inside Hangar 4, and they also are connected to the sanitary sewer.

Runoff: The 104(e) response notes that de-icing is conducted in the area surrounding Hangars 2, 3, and 4 (Page 2).

Number 12 of the 104(e) response (Page 6) indicates that trichloroethane is used at the facility for parts cleaner in Hangars 3 and 4 but the volume of trichloroethane is not indicated on this page. Given that rinse-water from Hangars 3 and 4 (via an OWS) discharge to the sanitary sewer, the volumes typically used at the site may be important to estimate potential discharge. Also, more information on trichloroethane use at the site, as well as information on what substances, if any, may have been discharged to the sanitary sewer with the rinsewater could be helpful.

The respondent mentions that no floor drains were located in the old Hangar 2, but the respondent not describe how rinsewater or other spilled liquids were handled in the old Hangar 2. More information on this subject could be helpful.

Also, if the respondent has completed any environmental sampling during their tank closures, those results should be forwarded.

### **Becton-Dickenson**

Becton , Dickenson and Co. (BD) owned and operated the property from approximately 1906/1907 to 1992. Building A (Parcel 5), the first building acquired, was purchased in 1907. Parcel 2 was acquired primarily between 1920 and 1950, with some additional lots purchased after 1950. Parcel 5 was purchased in 1945. Parcels 3 and 6 were acquired in the 1950s. Parcel 4 was purchased in the early 1950s and 1970s. Parcel 1 was purchased in the early 1970s.

Former owners/operators, and building uses include:

Parcel 1: Wallace Eannace Associates, Inc. (pump and pump parts sales and storage)

Parcel 2: Unknown (residential)

Parcel 3: Unknown (Building Z: assembly of drafting equipment), Millers Garage (Building Y: auto body shop)

Parcel 4: Unknown (residential), Fairleigh Dickenson University (Building F: classroom building)

Parcel 5: Mr. Molinair (Building A: hypodermic needle production); Unknown (Open area: diner)

Parcel 6: Unknown (undeveloped marshland)

The property was sold as follows:

1989 – Parcels 1 and 2 to Federal Reserve Bank of New York..

1993 – Parcel 3 to Domenick Pisciotta (private party).

2002 – Parcels 4, 5, and 6 to Liberty Commons, LLC.

BD manufactured medical devices such as glass syringes, thermometers, stainless steel cannula (syringe needles), and metal fittings. Manufacturing operations reportedly ended around 1988 (104e Response #6).

Facility operations included “cleaning, degreasing, and drying of pre-manufactured medical devices, prior to the on-site printing or plating of the device” (1990 ECRA Interim Status Units Final Closure Certification Report, Att. A, App. B – Closure Plan, p. I-2). Thermometers were manufactured from 1907 to the mid-1950s, which involved sealing mercury within a glass tube and etching with hydrofluoric acid. Cannula manufacture began prior to 1950 and made use of machinery that used hydraulic, cutting, and lubrication oils. The cannula were cleaned ultrasonically (with acidic and caustic solutions) or degreased (TCE or Freon). The syringe manufacturing process used dyes, paints, solvents, and one of the cleaning methods previously mentioned. Metal parts were machined from brass rods and tubes, soldered, cleaned (degreased or sonic), and electroplated with noncorrosive chrome finish. (June 1987 ECRA – Sampling and Analysis Plan, Vol. I, pp. 2.4 - 2.9)

Hazardous substances used at the facility that are also listed on the 104e Questionnaire include PCBs (Aroclors 1016, 1248, 1254, 1260); metals (aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc); PAHs (acenaphthene, acenaphthalene, anthracene, benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, chrysene, dibenzo[a,h]anthracene, fluoranthene, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, pyrene); solvents (hexachlorobenzene, methylene chloride, MEK, vinyl chloride, xylene, benzene, PCA, PCE, toluene, DCE, TCE, chlorobenzene, chloroform, 1,2-DCA, 1,2-DCE, ethylbenzene); cyanide; petroleum hydrocarbons; 2-methylnaphthalene; pentachlorophenol; phenol; bis(2-ethylhexyl)phthalate; di-n-butyl phthalate, and di-n-octylphthalate. Other PAHs used included benzo(j)fluoranthene, benzo(k)fluoranthene, and fluorene. PCB-containing transformers were also located throughout the property.

Hazardous wastes generated included TCE, Varsol (naphtha-based solvent) and other thinners, oils and waste oils, and a mix of TCE, trichlorobenzene, methylene chloride, Freon, butyl cellosolve, acetone, alcohol, and waste oil. Based on the Part A permit application, mercury and sodium cyanide wastes were also generated (1990 ECRA Interim Status Units Final Closure Certification Report, App. A).

Hazardous wastes were reportedly disposed of off-site. Until 1986, drums were stored either on wood pallets or directly on the asphalt at a 10'x10' drum storage area, located adjacent to Buildings L and W. According to the 1990 ECRA Interim Status Units Final Closure Certification Report, there were visible cracks in the pavement (Fig. 3-3). A grate-covered stormwater collection trench ran along one side of the storage pad. Hazardous wastes were later stored in the generator storage area at Building T. Additional wastes (spent degreasing solvents and oil) were stored in Underground Storage Tanks A, B, and C.

These tanks were removed in 1986.

Manufacturing operations took place in the following locations (June 1987 ECRA – Sampling and Analysis Plan, Vol. I, Table 2-6):

<u>Recent Operation/Activity</u>	<u>Most Recent Location</u>	<u>Former Location</u>
Metal parts manufacturing	Building W	Building A
Cannula manufacturing	Building W	Buildings N, S (partial), L, U, A
Disposable products- Manufacturing/Assembly, Packaging	Building S	Building A
Glass syringe manufacturing	Building L	Buildings N, S (partial), W (partial)
Plant maintenance	Buildings G, R, X	Buildings G, R, X, A (partial)

Building A was formerly used for thermometer production (1907-1950), plating operations, metal parts machining, and cannula manufacturing; it is currently used for office space. Process waste water was discharged via floor sumps to an outdoor neutralizing pit. Process and floor drain waste are suspected to have been discharged to one or two cisterns located at the south end of the building (it is unclear if the cisterns were holding or settling tanks, or dry wells). After the 1940s or 1950s, discharges were redirected to the sanitary sewer.

Building B was the boiler building and housed the oil-fired boilers for heating the facility. Floor drains and sumps were located throughout. Boiler blowdown was discharged to the sanitary sewer.

Building D was used to store and dispense solvents and oil. There were sumps and floor drains throughout the building. It was not specified to where the drains and sumps discharged.

Building L consisted of office space, the Teflon Room, a caged area for oil storage, loading docks, and the annealing area. This building had several floor drains, troughs, and sumps (one with an oil-skimmer). There was also a trough located outside of the loading dock entrance. It was not specified to where these drains and troughs discharged.

Building N was used for metal machining (1960-1980), cannula manufacturing (1960-1980), syringe manufacturing (1974-1980), metal parts cleaning (sonic, degreasing), and laboratory services. Process waste water was discharged to the sanitary sewer after neutralization. This building also had a loading dock.

Building Q had pilot project from 1980 to 1986 for the electroplating of cannula. Process wastewater containing iron, chromium, and nickel were reportedly drummed and stored in the building prior to off-site disposal. Corrosive process rinse water was discharged to a steel tank truck prior to neutralization and discharge to the sanitary sewer.

Building S was previously used for the manufacture of cannula, and more recently for the production of disposable products. The building had a sump and floor drains that discharged to the sanitary system.

Building T (northern section) was used to store containerized process wastes. There were reportedly 3 sealed sumps in this building to collect runoff; it was not specified to where the collected water was discharged. The southern section currently houses the on-site groundwater treatment system, but previously was used as the on-site company vehicle garage.

Building U was a former metal machining and degreasing building. A condensate return pump for the

building heating system drained to a nearby floor drain. It was not specified to where this floor drain discharged.

Electroplating was conducted in a portion of Building W since the 1970s. This building had wood flooring and "floor pits." Building W was also used for used oil storage and had floor drains and a floor trench. TCE and cutting oils were used in a portion of Building W that had a floor trough.

Building X was the machine shop office and locker room storage area. Used oil storage was in this building. This building contained a floor drain, for which the discharge path was not specified. The raw materials (Varsol, TCE, acetone, and methanol) dispensing pad, also located in this building, had a floor sump.

Process and sanitary wastewater was reportedly discharged to the Rutherford, East Rutherford, Carlstadt Joint Meeting Sewerage Treatment Plant. These waste streams included "lab sink wastes from the LINAC (linear accelerator) and S buildings; ethylene oxide pump (sterilization equipment) seal water; treated sonic cleaning machine water; treated non-contact degreaser cooling water; floor drain and rinse waters from the metal finishing (plating) department; floor drain waste from the mode special department (TechLaw Note: It not known what this is); treated experimental cannula cleaning water (Building Q); and glass grinding process waste settling pit overflow (June 1987 ECRA – Sampling and Analysis Plan, Vol. I, p. 2.11). Floor drains in Building W, historically connected to the stormwater system, were reportedly redirected to the sanitary sewer system in the mid-1970s, prior to the relocation of electroplating operations to Building W from Building A. The Building A floor drains reportedly discharged to two cisterns adjacent to the building. At the time of facility closure, all drains had reportedly been closed or connected to the sanitary sewer (June 1987 ECRA – Sampling and Analysis Plan, Vol. I, pp. 2.12-2.13).

Parcels 1, 3, 4, and 6 did not have stormwater drainage systems. Stormwater reportedly flowed overland into public storm sewers in the streets, and thence to nearby surface water bodies (June 1987 ECRA – Sampling and Analysis Plan, Vol. I, p. 2.10). BD installed stormwater collection and drainage systems in Parcels 2 and 5, which discharged under permit to Berry's Creek via outfalls 002 and 001, respectively. Stormwater Line 1 consisted of pipes, catch basins, and a drainage trench located beneath Buildings G, R, and X. Line 1A was located between Buildings W, G, R, and X and consisted of a drainage trench and pipes. The pipes, catch basins, and two septic tanks of Line 3, located on the southwest side of Buildings L and W, provided ground water drainage in an area of artesian conditions. Line 4, consisting of catch basins and pipes, was located between the downgradient part of Line 3 and Building W. Line 5, a series of pipes connecting several catch basins, provided common drainage for the other lines. All of these lines were tidally influenced by Berry's Creek. There were also north and south tunnels running beneath Building W as pipe chases for roof leaders. Production area floor drains in Building W were historically connected to the stormwater tunnels.

There were a couple waste streams not discharged to the storm or sanitary sewers. These included Building Q lab sink and sanitary wastes that were discharged to a cesspool next to the building. Early electroplating operations conducted in Building A discharged to two cisterns south of the building. It is unknown if these tanks were holding tanks, settling tanks, or drainage structures. Also, stormwater from the roof of Building A discharged via roof leaders to two subgrade drainage pits. A concrete wastewater treatment tank was located at the south end of the facility, next to Building W. Acidic wastewaters from the electroplating operations were neutralized in this tank prior to discharge to the sanitary sewer.

NJPDES/SIU: permit #001074 (stormwater discharge to Berry's Creek and process wastewater to sanitary sewer)

NJPDES/DGW: permit #NJ0078981 (discharge of groundwater/split from permit above), ~1990-1994.

Direct (e.g., pipe, outfall, spill): N/A. See Potential Discharges below.

Sanitary Sewer: N/A. See Potential Discharges below.

Storm Sewer: N/A.

Storm Drain: Sediments removed from the stormwater drains contained chromium, copper, lead, mercury, nickel, silver, zinc, BTEX, TPH, DCE, TCA, TCE, PCE, PCBs (1989 Verification Report for ECRA Site Remediation, Appendices Vol. I, App. B-1). The stormwater discharged to Berry's Creek.

During cleaning of Line 1, the washwater generated had a petroleum-like odor (1989 Verification Report for ECRA Site Remediation, Parcel Nos. 1 and 2, p. 3-52). This stormwater line likely discharged contaminants to Berry's Creek.

Sediments in stormwater Lines 4 and 5 and the tunnels beneath Building W were classified as hazardous. The sediments contained chromium, copper, lead, mercury, nickel, zinc, DCE, DCA, TCA, and TCE (1989 Verification Report for ECRA Site Remediation, Appendices Vol. I, App. B-1).

Contaminants including copper, mercury, TPH, and PAHs were detected in soils beneath the former drum storage pad during closure activities (1990 ECRA Interim Status Units Final Closure Certification Report, Att. A, pp. 3-31 to 3-35), indicating that some spillage or leakage probably occurred at the pad. The grate-covered drain adjacent to the pad would have acted as a direct pathway to Berry's Creek for these contaminants.

Floor Drain: Process area floor drains were historically connected to the Building W stormwater tunnels. The floors in the electroplating areas of Building W were heavily stained with electroplating liquids (noncorrosive chrome finish). The metal fittings production area floor was stained with water-soluble cutting oil. Although the floor drains in Building W were reportedly redirected to the sanitary sewer prior to start-up of electroplating operations, based on the storm drain information above, it is likely that the floor drain system in Building W discharged electroplating-related contaminants (such as chromium, copper, lead, nickel, and zinc) to the creek. Degreasing was also conducted historically in Building W, and likely resulted in the release of TCE and its degradation compounds (DCE, DCA, TCA) to the creek.

Floor staining was also observed in Building X-1 (raw materials dispensing pad); the specific raw materials dispensed here were not listed. Building L (Lamp Machine Room and the manufacturing area) utilized hydraulic, cutting, and lubricating oils, which leaked onto and through the wooden floor. The floor drains and troughs in Building L likely carried contaminants (TPH) to the creek.

Runoff: Metal turnings from the machining of brass parts and off-spec products were reportedly disposed of in Parcel No. 6 (the wetland area at the east side of the facility). Heavy metal contamination was detected in surface soils in this area, including copper, chromium, lead, mercury, and zinc (March 1989 Soil and Groundwater Remedial Action Plan - Parcel No. 6, p. 2-13). These contaminants were probably carried to the creek by surface water runoff via the Parcel 6 drainage ditch.

Elevated levels of PCBs were detected in surface soils in the vicinity of Building S (1989 Verification Report for ECRA Site Remediation, Appendices Vol. I, Fig. 2-1).

Groundwater: Groundwater contaminated with benzene, 1,2-DCE, trichlorofluoromethane, and vinyl chloride has been detected at the eastern edge of the site (March 1989 Soil and Groundwater Remedial Action Plan - Parcel No. 6, p. 4-10). Groundwater in this area discharges to Berry's Creek. Groundwater in this area also likely discharged to the creek via the drainage ditch. Benzene and 1,2-DCE are listed as chemicals of concern for the Berry's Creek Study Area.

Direct (e.g., pipe, outfall, spill): Depending on the date that sanitary sewer systems became available in the area, the facility may not have been connected to the sanitary sewer from the start. If not, process wastewaters may have discharged to Berry's Creek.

Sanitary Sewer: Boiler blowdown (containing TPH and PAHs) was discharged to the sanitary sewer. Because of the combined sewer system in the area, discharges to the sanitary sewer can overflow to the storm sewer and thence to surface water during periods of heavy precipitation.

Building W floor pit sludge contained chromium, copper, lead, mercury, nickel, zinc, TCA, TCE, and TPH (1989 Verification Report for ECRA Site Remediation, Appendices Vol. I, App. B-1). In the event of heavy precipitation, these contaminants would have discharged to the creek.

During RCRA closure activities, lead shot was found in the sump in Building S (1989 Verification Report for ECRA Site Remediation, Appendices Vol. I, p. 2-18). Floor stains were also observed (p. 2-19). In the event of heavy precipitation, spilled lead and other contaminants may have been discharged to surface water.

Storm Sewer: N/A

Storm Drain: Any spills occurring at loading docks at buildings such as L and N had the potential to discharge to the facility's storm drain system, due to the location of storm trenches at these locations. However, no spills were reported.

Floor Drain: N/A.

Runoff: Historically, coal ash from the facility boiler was used as fill on-site. Coal ash contains high levels of PAHs, and typically some metal contaminants. If near the surface, these contaminants would likely have been carried by stormwater runoff to Berry's Creek; however this fill material may have been covered by asphalt paving (June 1987 ECRA – Sampling and Analysis Plan, Vol. I, p. 2.15).

Groundwater: N/A.

Soil: Elevated levels of lead, copper, zinc, TPH, and PAHs were detected in soils in the vicinity of Building S, but it is unclear if these were surface or subsurface soils (p. 2-9).

Storm drains: chromium, copper, lead, mercury, nickel, silver, zinc, BTEX, TPH, DCE, DCA, TCA, TCE, PCE, PCBs, PAHs.

Floor drains: chromium, copper, lead, nickel, zinc, TCE, DCE, DCA, TCA.

Runoff: copper, chromium, lead, mercury, zinc, PCBs.

Groundwater: benzene, 1,2-DCE, trichlorofluoromethane, and vinyl chloride.

The November 1989 Verification Report for ECRA Site Remediation, Parcel Nos. 1 and 2, states that the facility's drainage system is provided on Figure 3-26. The drainage system in Building L is reportedly depicted on Figure 3-28, and a plan view of Building W is presented on Figure 3-27. However, Figures

3-26, 3-27, and 3-28 were not included in this copy of the report. This information is key in understanding the discharge system at the facility. Becton Dickenson should provide the figures, and any other historic engineering plans depicting drainage and piping systems at the facility.

Also, the June 1987 ECRA – Sampling and Analysis Plan, Vol. I states that a drawing of the plant wide storm system is provided on Figure 2-7. However, this figure was not included with this copy of the report. BD should provide this figure.

The June 1987 ECRA – Sampling and Analysis Plan, Vol. I, pp. 2.12-2.13 states that discharges to the sanitary sewer included “floor drain waste from the mode special department.” BD should provide an explanation of what this department is, and a description of the type of waste discharged via the floor drains.

BD had a NPDES permit, and should provide any analytical data collected as part of their monitoring program.

### **Cosan Chemical**

Cosan Chemical is a wholly owned subsidiary of Rutherford Chemicals, Inc., (which is a wholly owned subsidiary of Cambrex Corporation) a Delaware Corporation. In 1973 the Cosan Chemical Corporation purchased Block 97, Lot 1, from the Carlstadt Chemical Corporation. Cosan acquired Block 98, Lot 1, from BASF Corporation, Leather Finishes Division, in 1978. Prior to that time BASF owned and operated a portion of its Carlstadt Leather Finishes Division at the same location. In the early 1980's Cosan purchased Block 97, Lots 2 and 3, which were formerly occupied by an automobile repair/body shop. Based on ownership records Lancaster Chemical Corporation owned Block 98, Lot 1, during the mid-1960's. The area itself was developed for industrial use sometime between 1940 and 1951. A manufacturer of swimming pool liners also occupied this parcel.

On October 3, 1985, Cosan Chemical Corporation (1985 Cosan) acquired the business and certain assets of a corporation that owned and operated the Site, also named Cosan Chemical Corporation (Old Cosan). Since that time the 1985 Cosan owned and operated the Site. 1985 Cosan was incorporated on October 3, 1985. No corporate affiliates own(ed) or operate(d) the Site.

The site is located in a commercial/industrial area and is separated into two sections by Thirteenth Street. These two sections are referred to as the “Westside” and the “Eastside”. Cosan Chemical previously manufactured speciality chemicals including organic preservatives and mildewicides used primarily in the paint and coatings industry. The facility manufactures catalysts, fatty acid esters and telecommunications gels. Although the facility is currently in operation it was stated that manufacturing operations have and will continue to decrease. Storage tanks and container storage areas are provided to store raw materials, waste materials, intermediate products and finished products. All process and container areas are located indoors and secondary containment is provided to the wastewater treatment system. Process areas are further equipped with trench drains connected to the wastewater treatment system. Generally potential discharge routes out doorways are blocked by trench drains and/or curbs (sills). Shipments of raw materials are received by tank truck and by trailer truck containing drums, carboys, cans, and bags. Finished products are shipped overland to industrial users in tank trucks, and drums, pails, and cans transported with trailer trucks.

The “westside” section contains Building 5 (office, process, and container storage areas), Building 6 (boiler house), Building 7 (equipment storage building), and the outdoor, aboveground storage tank farm (Building 5 tank farm). Industrial process wastewater collected by trench drains in Building 5 flows to the wastewater treatment system located in the east corner of the building. The wastewater treatment plant comprises of four, 1675 gallon holding tanks and several treatment tanks used to conduct batch operations. Wastewater treatment processes include metal precipitation, pH adjustment, air stripping, oil and grease separation, and filter pressing. All wastewater is analyzed prior to being discharged to the Bergen County Utilities Authority (BCUA). The sanitary sewers servicing the “Westside” section are connected to the BCUA sanitary sewer.

Stormwater runoff from this section flows to catch basins in the Thirteenth Street and Division Avenue and to the ditch bounding the northwest facility. Stormwater flowing through the ditch enters the sewer beneath Division Avenue and drains into the tributary of Berry's Creek north of Building 3. Non-contact cooling water from the "Westside" section combines with stormwater and flows through the sewer beneath Thirteenth Street that drains to the tributary of Berry's Creek north of Building 3.

The "Eastside" section includes Building 1 (offices and storage areas), Building 2 (process areas and indoor tank farm), Building 3 (offices, laboratories, raw materials and finished products container storage area, RCRA container storage area), and Building 4 (machine shop).

Industrial wastewater collected by trench drains in Building 2 is pumped into a 3,800 gallon holding tank. From there the wastewater is pumped through overhead piping, across Thirteenth Street, to the wastewater treatment system in Building 5. The emergency wastewater tank in Building 2 provides an additional 5,000 gallons of diversion capacity. Treated effluent from the wastewater treatment system flows to the BCUA sanitary sewer. The Sanitary sewer servicing the "Eastside" section are also connected to the BCUA sanitary sewer system.

Stormwater runoff from this section flows to on-site catch basins and to catch basins in Thirteenth Street. Non-contact cooling water from the "Eastside" section combines with the stormwater and flows through an on-site sewer that drains to the tributary of Berry's Creek north of Building 3. Floor drains in all buildings discharge to the sanitary sewer.

Potential discharge routes involve the release of substances to outdoor asphalt or soil surfaces and flow into the stormwater catch basins discharging to the tributary.

There are no water supply wells within 1,000 feet of the facility, and a tributary to Berry's Creek runs along the north side of the site.

Cosán has used only toluene and zinc in recent years at its facility. In addition, Cosán used antimony in R&D activities for a possible product modification. Manganese was used in a former, discontinued product. (Techlaw Note: Response does not state why manganese was discontinued and why only toluene and zinc are now used.)

Since 1994, hazardous wastes generated at the site have been contained in drums and pails. There is no treatment, storage, or disposal of hazardous wastes at the site. Hazardous substances are generally blended or reacted with other substances and shipped to customers as part of a product. The facility is a generator only, not a TSDF. Prior to 1995 the facility was regulated under RCRA as a TSDF to allow for greater than 90-day storage of wastes. In 1995 the facility decided it no longer needed to store waste longer than 90 days and requested a NJDEP inspection to reflect generator-status only.

Hazardous wastes include a waste process organic liquid containing mercury and benzene; waste gear and motor oil containing tetrachloroethylene; off-spec products containing an organic liquid with di-n-propylamine; methyl ethyl ketone; spent 2,4-pentanedione containing xylene; waste glacial acetic acid; toluene; di-isopropylamine; 2-ethyl hexanoic acid; ammonia solution; aryl mercury compound; isopropyl alcohol; and toluene.

From 1984 to present the facility has undergone activities under the oversight of the NJDEP ECRA/ISRA Program. This has included the installation of monitoring wells; monitoring of chemical contamination at the wells, soil removal; groundwater treatment and detailed area investigations to determine historical fill issues, groundwater flow direction, etc. The activities are ongoing, with closure of most issues, and only a few remaining for resolution within the next few years. The open issues include confirmation that the groundwater treatment has been effective, which will be determined by periodic monitoring and resolution of a few areas of concern for soils.

Cosán entered the Environmental Cleanup Responsibility Act (ECRA) when a sale of the property was anticipated in December 1984. Since that time Cosán has conducted several phases of sampling and one phase of cleanup. Actions at the site included an extensive groundwater investigation of the two-aquifer system, and removal of identified subsurface sources of contamination and previously identified surface-stained soil areas. (TECHLAW

NOTE: Only page 1 and 3 of the Phase III Investigation report is provided. More information is needed.)

NPDES:

NJ0130885, effective 09/01/97 (expired 01/31/02)

BCUA:

Fac ID# 0294, effective 09/01/02

Sanitary Sewer:

Treated industrial process wastewater. (There is no specification as to what contaminants the wastewater would contain.)

Storm Sewer:

Non-contact cooling water that drains to the tributary of Berry's Creek north of Building 3.

Potential discharge routes involve the release of substances to outdoor asphalt or soil surfaces and flow into the stormwater catch basins discharging to the tributary.

"There has been no known, leaks, spill or releases into the environment from any hazardous substances, pollutants or contaminants from the Site to the Berry's Creek Study Area." (Response to question 16) A handwritten note states that "other than permitted discharge (incoming water to plant has mercury.)

Need more information about the release of chemicals that might have impacted the Barry's Creek Study Area.

Cosan supplied only page 1 and 3 of the "Environmental Cleanup Responsibilities Act Summary of Phase III Investigation." Pre-remedial soil/groundwater sampling data needs to be provided.

From the 104(e) response one cannot tell what, when and where contamination was identified. The report gives no information regarding any contamination or any on-going remedial activities. Full investigational reports need to be provided.

According to documentation found in the Rohm and Haas file (Bates Nos. MVP-01-214431 - 33) Cosan Chemical produces phenyl mercuric acetate and its NPDES permit specifically allows it to discharge an amount of that substance into the creek on a continuous basis. Significant quantities of mercury wastes were produced by Cosan in 1982, 1985, and 1986. There is also a pathway for mercury from the Cosan plant to Berry's Creek. The fact that Cosan produced mercury wastes is further established in the waste manifested by Cosan from 1982-1988. Significant quantities of mercury wastes were produced by Cosan in 1982, 1985, and 1986. (Note: Waste manifests from this time period were not produced with the 104(e) response.)

**Diamond Shamrock**

Occidental Chemical Corporation (OCC) indicates on the cover letter of its 104(e) response, dated December 11, 2002, that "OCC's involvement with the "Diamond Shamrock/Henkel Site," or "Site", as defined by EPA, was from September 4, 1986 until March 30, 1987." However, additional information indicates that OCC believes its predecessor, Diamond Shamrock Chemicals Company (DSCC), owned the site from 1976 up to its acquisition by Oxy-Diamond Alkali Corporation on September 4, 1986 (Response to Request for Information, Page 3). In an attachment to the Response, Eckhardt Survey, dated April 30, 1979, it is noted that the facility

opened in 1921. Information in the Draft Remedial Investigation Work Plan, included as an attachment, indicates several owners prior to Diamond Alkali, including Silver Fox Lard Company (prior to 1921), the Jacques Wolfe Company (1921 - 1959), the Napco Chemical Co. (1959 - 1967), and Diamond Alkali Co.) The date that Diamond Alkali Co. purchased the site is inconsistent (1967 v. 1976). Shortly thereafter, DSCC changed its name to Occidental Electrochemicals Corporation. Subsequently, Occidental Electrochemicals Corporation and Oxy-Diamond Alkali Corp. merged into Occidental Chemical Corporation. Between September 4, 1986 and March 30, 1987, OCC created a new entity, Oxy Process Chemicals Inc. The Carlstadt facility (the site) was conveyed to this new entity, the stock of which was sold to Henkel Corporation as of March 30 1987. No company affiliated with OCC has conducted activities at the site since March 30, 1987 (Response..., Page 5).

The facility manufactured several products, including wetting, penetrating, and dispersing agents for agriculture and the paint and the paper industries; dispersants and super-plasticizers for the concrete and oil industries; synthetic tanning agents and fixatives for the textile dying industry. Processes used at the site included sulfonation, condensation, esterification, filtration, batch distillation, gas-solids reaction, and compounding, crystallization, high vacuum evaporation. OCC believes that "the nature of these activities was similar through the ownership and operation of the site by OCC's predecessor, Diamond Shamrock Chemicals Company" (Response..., Page 3).

The respondent contends that information available to OCC about hazardous waste practices at the site is limited. As stated in a Draft Remedial Investigation Work Plan (1986), the primary wastes from plant operations "has been and continues to be gypsum sludge, which,....for the past 13 years had been disposed of in a local landfill" (Response..., Page 5). Prior to that, the sludge was pumped to dewatering basins. In addition, filter cloth, contaminated with sodium bisulfate, was generated at the rate of 2 drums per month and disposed off-site. Zinc filter cake had been previously sold to zinc companies for reclamation. The Draft Remedial Investigation Work Plan (1986), included as an attachment, also indicates that zinc oxide has been stored onsite since 1976. Prior to 1976, zinc oxide was removed to a landfill.

Prior to 1982, wastewater still bottoms were disposed of at the SCA facility in Newark, NJ. Two lined lagoons (equilization basins) were closed with State concurrence and two unlined lagoons had been filled. Testimony by a Mr. John Bratt, Jr. during litigation brought by adjacent property owners (Morton International v. Allied Signal, et al.) provided in the 104(e) response suggested that Diamond Shamrock discharged zinc oxide sludge to a ditch that would eventually discharge to Berry's Creek (Page 190, Volusia Reporting Company). The respondent notes in the cover letter of the 104(e) response that information generated in the Morton litigation...constitutes allegations of the plaintiffs, which are "unproven and contested by past and present owners of the Site, but are provided for completeness."

The respondent also notes that an on-site solid waste disposal area containing "unknown wastes" also existed at the site.

The respondent states that "in earlier eras, process waste waters were likely disposed to Berry's

Creek" (Response...Page 6).

In an attachment to the Response, Eckhardt Survey, dated April 30, 1979, components of process waste from the facility included zinc, cadmium, copper, chromium (trivalent), organic resins, and salts.

An attachment to the Response, Diamond-Shamrock (Oxy Process Chemicals, Inc.) Wastes Produced, indicates the following additional process wastes:

- any combination of arsenic, barium, cadmium, or chromium
- spent non-halogenated solvents, including xylene, acetone, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone and methanol
- acrylamide
- formaldehyde
- naphthalene
- phenol
- toluene diisocyanate
- asbestos
- chlorobenzene
- chloroform
- cresols
- formic acid
- methanol
- urethane
- lead
- mercury
- selenium
- silver

NJPDES - A permit to discharge to Berry's Creek was issued June 30, 1974 and expired June 30, 1979. Another was issued December 1983 and expired January 15, 1989. The respondent notes that violations have occurred (Response..., Page 8). A Notice of Civil Administrative Penalty was issued to Diamond Shamrock by the State of New Jersey, date unknown, for two exceedances of biological oxygen demand (BOD) and total organic carbon (TOC) in the mid-1980s.

The Draft Remedial Investigation Work Plan (1986) indicates that production wastewater (kettle wash) and floor wash are disposed of by sanitary sewer under NPDES #002 at a rate of about 3,000 gal/day.

The facility also holds air permits.

Direct (e.g. pipe, outfall, spill): The respondent has stated that "in earlier eras, process waste waters were likely disposed to Berry's Creek" (Response...Page 6). Sediment samples collected in what is known as the Diamond Shamrock/Henkel ditch (*apparently this ditch is located off site*) for Velsicol Chemical Corporation noted that concentrations of zinc were detected in

sediment at 7,300 mg/kg at sample number SD-05 (closest to the Diamond Shamrock/Henkel facility). The source of the information is the Phase I Remedial Investigation Report: Ventron/Velsicol Site, prepared by Exponent. The respondent has only provided an excerpt of this report as an attachment, and therefore, the locations of the samples in relation to the site can not be determined.

An attachment to the Response, an Order from the NJ State Dept. of Health, dated December 18, 1968, indicated that the State "has found through investigations made by its representatives that Diamond Alkali Company...is discharging industrial waste and other polluting matter into Berry's Creek..." The State ordered Diamond Alkali to propose a method of treatment or disposal by March 15, 1969.

Additionally, a letter from the NJDEP issued a Notice of Violation, dated May 17, 1983, as a result of a spill of approximately 1,000 gallons of naphthalene sulfonic acid that occurred on February 10, 1983. The spill discharged onto the ground and flowed into Berry's Creek.

Sanitary Sewer:

Storm Sewer:

Storm Drain:

Floor Drain:

Runoff:

Groundwater:

Direct (e.g. pipe, outfall, spill): Testimony from the Morton case indicated that "the publicly-available Waste Disposal Site Directory for New Jersey indicates that approximately 335,000 tons of chemical process wastes were disposed of at the Diamond Shamrock Facility, including, but not limited to, metals, organics, and inorganics. Disposal methods at the Diamond Shamrock Facility included landfills, pits, ponds, and lagoons." The plaintiff in this case believed PCBs were detected in soils and in the sediment of the production pond at the Diamond Shamrock Facility with levels up to 120 ppm, as referenced in a Phase I Site Assessment Report, prepared by IT Corp., dated October 1988. Other major contaminants identified during litigation were chromium and zinc.

An attachment to the Response titled "Expert Report of James S. Smith, PhD, CPC" also indicates that contaminants were likely disposed of in the production pond. A storm sewer inlet on the east side of the pond may have allowed runoff to enter the pond, and a ditch on the south side of the pond allowed flow from the Arsynco property. The expert report also indicates that "more likely than not, dissolved contaminants and contaminants adsorbed onto suspended particles were released from the production pond to the Diamond Shamrock/Henkel inlet ditch during tidal actions prior to installation of the tidal gate." The report indicated that contaminants

included zinc, arsenic, and manganese. *Note: The Expert Report is only an excerpt of pages.*

Sanitary Sewer:

Storm Sewer:

Storm Drain:

Floor Drain/Sump: The Draft Remedial Investigation Work Plan, dated 1986, prepared by Woodward-Clyde Consultants indicated that a leak in a heat-exchange unit that had contained PCB oil occurred prior to 1973. The PCB-containing oil entered a sump in the northwest corner of the building. Results of sampling showed that migration had occurred, beyond the foundation walls, and a concentration of PCB was present in fill beneath the pond road at concentrations up to 2590 ppm. Monochlorobenzene was also detected in soil samples. The report includes a figure that shows sample locations and a good layout of the facility.

Runoff:

Groundwater:

Soil: An attachment to the Response titled "Expert Report of James S. Smith, PhD, CPC" also indicates that PAHs (polyaromatic hydrocarbons) were "present in soil samples collected on the Diamond Shamrock/Henkel property."

The Attachment to the Response titled "Diamond-Shamrock (Oxy Process Chemicals, Inc.) Wastes Produced" notes the "Chemical's Found in Berry's Creek Area Common to Diamond-Shamrock" as arsenic, cadmium, chromium, lead, mercury, acetone, and xylene. The source of this information was apparently a "WES Report."

Also, 1,000-gallons of naphthalene sulfonic acid during a spill on February 10, 1983.

The respondent has noted that "in earlier eras, process waste waters were likely disposed to Berry's Creek" (Response...Page 6). Process wastes appear to have included zinc, cadmium, chromium, xylene, naphthalene, and many other chemicals of interest. Additionally, spills have occurred that released PCBs and naphthalene sulfonic acid. Limited information has been provided on operations at the facility, and only extracted and incomplete information has been provided on the litigation involving disposal practices at the facility. Any investigative or remedial reports generated for this facility should be requested, including a Phase I site assessment report, prepared in 1988. It also appears that Henkel Corporation, who purchased the property in 1987, may have additional information on the New Jersey ECRA investigations that may still be ongoing.

Additionally, wastes discharged to four lagoons onsite, particularly the two unlined lagoons, the locations of these lagoons, and the time periods they were used will be essential to determine

potential impacts.

### **Port Authority**

The Port Authority purchased the site on April 1, 1949 from Fred L. Wehran, a private owner, and has been the owner to date.

Teterboro Airport (TEB) is owned and operated by the Port Authority of New York and New Jersey. TEB is located in the Boroughs of Teterboro and Moonachie, and consists of 826 acres: 90 acres for aircraft hangars, maintenance and office facilities, 408 acres for aeronautical use and 329 undeveloped acres.

The Port Authority operates five buildings on-site, designated as numbers 27, 70, 72, 73 and part of hangar 121. AvPORTS, under a management agreement, operates building nos. 27 and 73 for the Port Authority. Building 27 is the airport operations office, located at 399 Industrial Avenue. Building 73 is the new maintenance building, located at 400 Industrial Avenue. Buildings 70 and 72 are office buildings and the Port Authority occupies a portion of Hangar 121 for its police helicopter operations. *TechLaw Note: The 104(e) response apparently does not describe these helicopter operations in detail, but additional responses by the facility indicate that helicopter parts cleaning with petroleum naphtha (also known as mineral spirits) is associated with this operation.*

The following companies/tenants operate Fixed Base Operator Facilities under Use and Occupancy agreements at the airport (addresses and contact info is included on Page 2 of the 104(e) response):

- Jet Aviation Teterboro
- Signature Flight Support, New Jersey, Inc.
- Atlantic Aviation
- First Aviation Services
- General Aviation Aircraft, Inc.

The following companies/tenants occupy a hangar under a Use and Occupancy Agreement (addresses and contact info is included on Page 2 of the 104(e) response):

- American International Aviation Corporation
- United Air Fleet a.k.a. Executive Jet Management

The following companies/tenants occupy and operate the Fuel Farm under agreements with the Port Authority (addresses and contact info is included on Page 2 of the 104(e) response):

- ExxonMobil Corp.
- ChevronTexaco Global Aviation

Additional tenants are included in a directory of tenants, included as an attachment to the 104(e) response.

Pan American World Airways, Inc. formerly operated the airport under a lease agreement with the Port Authority, beginning on January 1, 1970. On August 1, 1989, the agreement was

assigned by Pan American World Airways, Inc. to Pan Am World Services, Inc, which later changed its name to Johnson Controls World Services, Inc. in 1991. Johnson Controls was responsible for all waste treatment, storage and disposal activities at the site, until the agreement was terminated November 30, 2000.

On December 1, 2000, the American Port Services, Inc. (also known as AMPORTS) began an agreement to operate and maintain the airport. In November 2002, Macquarie Aviation North America<sup>2</sup> (doing business as AvPORTS) assumed operation and maintenance responsibilities. AvPORTS is currently responsible for all waste treatment, storage and disposal activities at Port Authority buildings 27 and 73. SafetyKleen is/was under contract with AvPORTS to transport spent solvents generated at building 73.

Hazardous wastes generated by Port Authority operations consist of liquid petroleum naphtha from Port Authority helicopter parts cleaning, flammable liquid contaminated with aviation fuel, waste paint, turbine oil and waste oil contaminated with carbon tetrachloride. (104(e) response, Page 5). Various Material Safety Data Sheets for petroleum naphtha, weed control and pest control pesticides, are included in the 104(e) response. A chemical inventory for small quantities of chemicals used at the facility is also included as an attachment to the 104(e) response. Additionally, number 8 of the response mentions that a Phase I Environmental Site Assessment Report, Final Report, Volumes I, II, and II, dated June 1998 by Camp Dresser & McKee (CDM) details hazardous wastes, industrial waste and hazardous substances handled and stored at the site. *TechLaw Note: This Phase I report is apparently not included in the facility's file. This may provide more detailed information, including usage, for specific chemicals at the site. It is suggested that this report, as well as a Site Investigation Report, dated November 1999, be obtained from the facility.*

The 104(e) response maintains that "tenants are responsible for all hazardous substance they use, store, or handle at the site" (Page 6).

Storm water drainage at the site flows to an existing pump station, located off-airport property and operated by the Borough of Teterboro. Outfall 1 is located adjacent to the Jet Aviation complex; outfall 2 is located adjacent to the pump station. Most drainage in the Jet Aviation complex area goes to a series of detention basins before exist to the east rise ditch. The 104(e) response indicates that more information on documentation of storm water flow can be found in Stage I Storm Drainage Study and Technical Supplement (Appendix F), dated June 2001, by Goodkind & O'Dea, Inc. A site layout, titled Existing Conditions, shows locations of the outfalls.

NJPDES Permit No. NJ0028941: June 1986 - present.

Department of the Army Permit No. 87-0247, issued July 28, 1997, expires July 28, 2007. This permit allows the discharge of 108,175 cubic yards of fill material into 23.3 acres of wetlands in the West Riser Ditch, Berry's Creek Watershed at Teterboro Airport.

NJDEP Stream Encroachment Permit No. 0237-90-000.6 (SE), issued May 13, 1997. This

permit grants permission to establish stream encroachment lines and place fill in the 100 year tidal plain along the West Riser Ditch, in the Borough of Moonachie, as part of airport development projects.

NJDEP Water Quality Certificate No. 0237-90-0001.8, issued with NJDEP Stream Encroachment permit.

NJDEP Air Permits: various

Bergen County Utilities Authority (BCUA) November 22, 2002 Industrial Pretreatment Program letter for Building No. 27

*104(e) response also notes permits issued to tenant ExxonMobil.*

Storm Drain:

In the Teterboro Airport Fuel Spill Report - 12/1/2000 - 11/30/2002, included with the 104(e) response, several fuel spills ranging in quantities of unknown to 30-40 gallons are believed to have impacted storm drains onsite. Refer to the Fuel Spill Report for location details.

Soil:

In the Environmental Evaluation Form "C" for Airport Development Projects, included as an attachment to the 104(e) response, #22 on Page 17 indicates that the proposed airport project "may contain soils that are contaminated with petroleum hydrocarbons (e.g. avgas, jet fuel, hydraulic fluid)..."

The Teterboro Airport Fuel Spill Report - 12/1/2000-11/30/2002 also summarizes several fuel spills throughout the property that have impacted soil. Fuel spills dated 2/8/02 and 3/9/02 are reported to have "contaminated soil removed" (Teterboro Airport Fuel Spill Report). *TechLaw*

*Note: Post-excavation sampling results are apparently not provided but may be useful, if available.*

In its response to Question 15 of the 104(e) letter, the facility completed the form "Request for Information Regarding Chemical Releases to the Berry's Creek Study Area." In this form, the facility has responded that "Yes" - several of the chemicals listed have been released from the site. Those chemicals listed as "Yes" include: antimony, arsenic, benz(a)anthracene, benzene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, butyl benzene phthalate, cadmium, chromium, chrysene, ethylbenzene, fluoranthene, indeno(1,2,3-cd)pyrene, lead, mercury, 2-methylnaphthalene, nickel, petroleum hydrocarbons, phenanthrene, PCBs (Aroclor 1254, Aroclor 1260), pyrene, silver, thallium, toluene, 1,1,1-trichloroethane, xylene, and zinc.

The respondent states that this information was extracted from CDM's Site Investigation Report, which has not been included with the 104(e) response since they are "privileged and confidential and will be released pursuant to a confidentiality agreement with the U.S. Environmental Protection Agency." *TechLaw Note: This Site Investigation Report should be obtained to determine what concentrations have been detected, in what media, and at what locations in*

*order to determine if they have, in fact, impacted the Berry's Creek Study Area. Of particular interest are the inorganics: chromium, cadmium, zinc, silver, etc.*

The 104(e) response notes that "The Port Authority has not conducted any remedial activities at the site" under CERCLA, RCRA, or laws of NJ (Response to No.12, Page 7); however, it mentions that ExxonMobil conducted remedial activities regarding spill numbers 93-9-29-2245-37 and 92-10-2-1447-40 at their bulk farm.

The Port Authority has provided a table of fuel spills between 12/1/2000-11/30/2002, but the facility has apparently not mentioned any previous spills, if any, that may have occurred at the facility between 1949, when operations began, and 2000. If any of this information is available, it should be submitted as well. Also, if the Port Authority has sampled soil, groundwater, or other media at the site in response to any of the spills that it has noted, those sampling results as well as sample locations should be submitted.

A Phase I Environmental Site Assessment Report, dated June 1998, and a Site Investigation Report, dated November 30, 1999, both prepared by CDM, have apparently been generated for the site, but have not been included with the original 104(e) response. It is noted in the cover letter of the 104(e) response, dated December 20, 2002, that these two documents "are privileged and confidential and will be released pursuant to a confidentiality agreement with the U.S. Environmental Protection Agency." These documents should be reviewed as they likely contain more detailed information about the contaminants that have been released at the subject property.

### **Randolph Products**

The respondent, John H. Randolph, states that Randolph Products Co. was a small, family-owned company, owned and operated by his father until his death when it was split between his children. (The date of the father's death is not given.) The Randolph Products Co. (likely, the entity itself) was sold on January 14, 2002 (apparently to C&C Ventures). The respondent states that he and his sister, Joanna A. Randolph, still own the land. Altje, Inc. was the company that was formed to "hold the land for sale," apparently incorporated about 8/2001. Altje, Inc. has a short term lease with the new owners, apparently C&C Ventures, which began January 14, 2002 (Response to Request for Information, #1, 3, and 4).

The response to the request for dates of operation is incomplete. The respondent has only provided the date of the January 2002 lease by the new entity (Altje, Inc.). However, the response to #6d mentions that a lab that tested and produced paint formulas had been in operation since 1938. Therefore, it is assumed that Randolph Products has operated at the site from at least 1938 until 2002, when it was sold.

Randolph Products manufactured government paint, aircraft paint, and general industry paint. The respondent states that the "old Randolph Products Co." had a lab (that tested and produced paint formulas) from 1938 (Response to Request for Information, #6). Specific operations at the facility (mixing operations, process waste streams, etc.) are not mentioned. The respondent has provided a list of hazardous materials used at the facility, which includes dozens of likely paint

pigments (Orasol Red G, Zapon Yellow, Oil Orange 205, Chrome Green 50-1, Trans Red Oxide UCD, Zinc Stearate DLC-20A, etc.), methyl ethyl ketone, methanol, hexane, ether, cyclohexanone, ethylene dichloride, toluene, xylenes, methyl isobutyl ketone, VM & P naphtha, mineral spirits, resins, phosphoric acid, acetic acid, caustic soda and dozens more (Refer to the Response for a complete list). (While the composition of the pigments are not stated in the response, metal oxides (including zinc, cadmium, chromium, and iron) are common colorants in paint). The respondent has stated that "it is impossible to provide volumes for the substances" since use varies "dramatically" based on need and period of time. Therefore, no volumes are reported.

The respondent has also provided a summary of the tanks and containment systems for the tanks located on site. (It appears as if this section of the response was extracted from a Discharge Prevention, Containment, and Countermeasure (DPCC) Plan, likely required by the State of New Jersey in the 1990s.) The respondent has not provided any information on dates of tank installation or any historical information for the site. The capacity of the tanks is provided for only a few.

According to the response, there are two tank farms (of aboveground storage tanks (ASTs)), and three single ASTs (Response to #10).

The South Tank Farm contains the following 12 tanks, and is surrounded by a 3-foot high concrete containment dike:

- Tanks T-21, T-22, and T-23 - out of service; pipes have been removed and capped (no details on size or contents of the tank are mentioned);
- Tank T-24 - contains acetone
- Tank T-25 - contains butyl acetate
- Tank T-26 - contains ethyl acetate
- Tank T-27 - contains thinner, "a mixture of several solvents;"
- Tank T-28 - contains methyl ethyl ketone;
- Tank T-29 - contains isopropyl alcohol;
- Tank T-30 - contains xylene;
- Tank T-33 - four-compartment tank; both end compartments are empty; the center compartments contain laktane, and butyl cellosolve;
- Tank T-35 - four-compartment tank; one compartment is empty; the others contain butyl alcohol, a solvent mixture, and hexane.

The North Tank Farm has 10 tanks, listed as follows, and is bounded by containment:

- Tanks T-11 and T-12 - contain #2 fuel oil;
- Tank T-13 - contains butyl acetate;
- Tank T-14 - contains Laktane (a light aliphatic solvent naphtha);
- Tank T-15 - contains TyII Epoxy Thinner;

- Tank T-16 - contains Butyl Alcohol;
- Tank T-17A - contains Methoxy Propanol (PM Solvent);
- Tank T-17 - contains toluene;
- Tank T-20 - contains ethyl alcohol;
- Tank T-31 - four-compartment tank; end compartments contain mineral spirits; one center compartment contains VM&P (likely a solvent by Varnish Makers and Printers), the other contains naphtha

The single tanks are listed as follows:

- Tank T-32 - 10,000-gallon AST with four compartments; the compartments contain acetone, methanol, polyvinyl acetate, and diacetone alcohol;
- Tank T-34 - 10,000-gallon AST with four compartments; one compartment contains a 60% maleic solution, an intermediate, made in house and used in formulations; another compartment contains 9652, a clear semigloss lacquer made in house; the third contains 9600, a clear gloss lacquer made in house; the fourth contains dioctyl phthalate, a plasticizer.
- Tank 10 - 15,000-gallon containing 6 compartments, containing various resins

Three drum storage areas are also designated onsite. Drum storage area #1 contains all the resins used in formulations. An 8-page list of resins is included with the response. Acrylic resins, alkyd resins, cellulose resins, cellulose acetate, epoxy ester resins, phenoxxy resins, melamine resins solutions, oil-modified polyurethane resins, nitrocellulose, hexamethylene diisocyanate polymer isocy, polyester resins, chlorinated polyolfin solution, vinyl chloride resins, and chlorinated paraffin are included on the list. Drum storage area #2 contains pigment dispersions made in the factory using resins from drum storage area #1 mixed with pigment. The materials stored in drum storage area #3 are not listed.

A Site Plan is provided which shows the locations of the manufacturing building and the tanks on site. The figure also shows an electrical transformer. (Although not mentioned, PCB-containing oils may have been used in the transformer).

The respondent has listed the following permits, without including any other identifying information, such as permit #s, dates of issuance, etc.:

- Operating Permit Program
- Air Quality Permit
- Hazardous Material Transportation
- Annual Life Hazard
- NJ Pollutant Discharge Elimination System

The respondent has stated in response to question #13, regarding leaks, spills, or releases - "As

far as this manufacturing facility there have been none.”

Direct (e.g. pipe, outfall, spill):

Sanitary Sewer:

Storm Sewer:

Storm Drain:

Floor Drain:

Runoff:

Groundwater:

Direct (e.g. pipe, outfall, spill):

Sanitary Sewer:

Storm Sewer:

Storm Drain:

Floor Drain:

Runoff:

Groundwater:

Soil:

The information provided by the respondent is incomplete and requires follow-up. Based on the number of tanks mentioned, it appears that Randolph Products was a relatively large paint manufacturer that has operated as early as 1938. The respondent should provide more information on the dates of historical operation, details on the past and present manufacturing processes, and on specific waste streams generated by past or present processes. The respondent should provide additional information on floor drains, sumps, discharge points, and any underground piping systems (including sanitary or industrial sewers).

The respondent should provide more information on the permits issued to the site, particularly the NPDES permit. The permit #, discharge limits, and any violations should also be submitted.

The respondent notes on the cover letter that Randolph Products Co. "is in the ECRA process." Any reports, sampling results, or other information relative to the ECRA process (New Jersey's Environmental Cleanup Responsibility Act) should be submitted as they likely contain a detailed look at potential areas of concern at the site, and may also elaborate on operations at the site.

The capacity of each tank and the volumes of hazardous materials used should also be reported.